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Point projection radiography with the FXI*

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Radiography techniques utilizing large area x-ray sources (typically ≤ 7 keV) and pinhole-imaging gated x-ray imagers have long been used at the Nova laser facility. However, for targets requiring higher energy x-ray backlighters (> 9 keV), low conversion efficiencies and pinhole losses combine to make this scheme unworkable. A new technique, *point projection radiography* has been developed to make imaging at high x-ray energies feasible. In this scheme a “point” source of x-rays, usually a small diameter (≤ 25 μm) fiber, is illuminated with a single, 100 ps pulse from the Nova laser and acts as the focal plane for the imaging system. A gated x-ray imager with a 500 ps electronic gate width [1] is used to record the image. The experimental challenges this technique presents and results from several applications will be discussed. *This work was performed under the auspices of the U. S. Department of Energy by the Lawrence Livermore National Laboratory under Contract No. W-7405-ENG-48.

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